

PA5 Part 4 ArrayList vs LinkedList Battle

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Battle #1, addition.

In this battle, I tested each class 5 times and recorded their times.

```
class DoublyLinkedListTest2 {  
  
    @Test  
    void add() {  
        DoublyLinkedList<String> list = new DoublyLinkedList<>();  
        list.add("apple");  
    }  
  
    // @Test
```

Attempts for DoublyLinkedList	Time(in milliseconds)
1	41
2	38
3	39
4	39
5	37

Average: 38.8

```
class MyArrayListTestLab {  
  
    @Test  
    void add() {  
        MyArrayList<String> list = new MyArrayList<>( capacity: 1);  
        list.add("apple");  
    }  
  
    // @Test  
    // void get() {  
    // }
```

Attempts for MyArrayList	Time(in milliseconds)
1	38
2	38
3	37

4	39
5	37

Average: 37.8

Conclusion: As observed, Doublylinked list performed on average a little higher than MyArrayList(38.8ms) while MyArrayList performed (37.8ms). MyArrayList wins this battle by a small difference.

Battle #2, contains

In this battle, I tested each class 5 times and recorded their times.

```
class DoublyLinkedListTest2 {

    @Test
    void contains() {
        DoublyLinkedList<String> list = new DoublyLinkedList<>();
        list.add("apple");
        System.out.print(list.contains("papaya"));
    }
}
```

printed(false)

Attempts for DoublyLinkedList	Time(in milliseconds)
1	37
2	37
3	37
4	40
5	39

Average: 38ms

```
class MyArrayListTestLab {

    @Test
    void contains() {
        MyArrayList<String> list = new MyArrayList<>(capacity: 1);
        list.add("apple");
        System.out.print(list.contains("papaya"));
    }
}
```

printed(false)

Attempts for MyArrayList	Time(in milliseconds)
1	40
2	39
3	39
4	38
5	37

Average: 38.6

Conclusion: MyArrayList performed a little slower on average than DoublyLinkedList, (0.6ms slower). DoublyLinkedList wins by extremely small difference.

Battle #3, get

In this battle, I tested each class 5 times and recorded their times.

```
class DoublyLinkedListTest2 {  
  
    @Test  
    void get() {  
        DoublyLinkedList<String> list = new DoublyLinkedList<>();  
        list.add("apple");  
        list.add("papaya");  
        list.add("orange");  
        System.out.print(list.get(1));  
    }  
  
}
```

prints(papaya)

Attempts for DoublyLinkedList	Time(in milliseconds)
1	40
2	44
3	39
4	40
5	39

Average: 40.4ms

```

class MyArrayListTestLab {

    @Test
    void get() {
        MyArrayList<String> list = new MyArrayList<>( capacity: 1);
        list.add("apple");
        list.add("papaya");
        list.add("orange");
        System.out.print(list.get(1));
    }
}

```

Prints (papaya)

Attempts for MyArrayList	Time (in milliseconds)
1	38
2	39
3	40
4	36
5	34

Average: 37.4

Conclusion: DoublyLinkedList performed 4 ms slower than MyArrayList on average. MyArrayList wins again by a slightly higher difference.